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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/873,979	06/01/2001	Joseph C. Dettling	3919A (CON)	9458

7590 08/24/2006

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EXAMINER	
KERNS, KEVIN P	
ART UNIT	**PAPER NUMBER**
1725	

DATE MAILED: 08/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/873,979	DETTLING ET AL.	
	Examiner	Art Unit	
	Kevin P. Kerns	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,6,9,10,14,17-20,24,27,28,32 and 35-51* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,6,9,10,14,17-20,24,27,28,32 and 35-51* is/are rejected.

7)☒ Claim(s) *18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 18 is objected to because of the following informalities: in the 3rd line of the claim, delete "and" after "layer". Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1, 2, 6, 9, 10, 14, 17-20, 24, 27, 28, 32, and 35-51 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to independent claims 1 and 10, it is unclear what is meant by the limitation "exhibiting a minimum of component migration from the first zone". How would a "fixed" coating composition be able to migrate, absent additional structure(s) within the honeycomb? In other words, the applicants have not set forth any distinct structural features (as a portion of the larger honeycomb substrate) that would affix the coating composition to such an extent as to "exhibit a minimum of component migration".

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1, 2, 6, 9, 10, 14, 17-20, 24, 38-46, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 92/09848 in view of Domesle et al. (US 4,588,707).

WO 92/09848 teaches a ceramic or metallic honeycomb substrate for treatment of exhaust gases. WO 92/09848 teaches the use of rare earth catalyst coatings for the substrate, particularly coatings of palladium with alumina or zirconia. The substrate may have multiple zones of catalyst coatings with a zone having more than one catalyst coating. The coatings of different zones may overlap and the thickness of the catalyst coatings may vary or be graded so that the coatings taper until a zone of uncoated substrate is achieved. These coatings are "fixed", and thus exhibit a minimum of

component migration from the zones. (Figures 1a-1d and 2a-2d; and pages 12-15). WO 92/09848 does not teach that the substrate is a wall flow substrate.

However, Domesle et al. teach a wall flow ceramic honeycomb substrate with an inlet end and an outlet end that has wall elements that form a plurality of channels. Catalyst compositions of rare earth oxides are coated to the inlet end and outlet, with a noble metal being preferably coated at the outlet end. Domesle et al. teach that a wall flow substrate is useful because it causes gases to flow through pores and the wall, causing impurities to be filtered from exhaust gases. Domesle et al. teach that this is particularly useful for filtering Diesel soot from exhaust gas. (Domesle et al.; column 1, lines 63-68; column 2, lines 1-18 and 37-44; and column 3, lines 19-50).

It would have been obvious to one of ordinary skill in the art at the time that the applicants' invention was made to have modified the substrate of WO 92/09848 by the teachings of Domesle et al. One would have been motivated to do so in order to provide a substrate that was useful for filtering impurities from exhaust gases, particularly Diesel soot, as taught by Domesle et al.

7. Claims 47-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 92/09848 in view of Domesle et al. (US 4,588,707) as applied to claims 1, 2, 6, 9, 10, 14, 17-20, 24, 38-46, and 51 above, and further in view of Hu et al. (US 6,044,644).

The former references teach the substrate described in paragraph 6. However, these references do not teach the use of oxygen storage components.

However, Hu et al. teach catalyst supports for processing engine exhaust in which an upstream catalyst support lacks oxygen storage components, such as ceria and praseodymium oxide, while a downstream support includes these oxygen storage components. Hu et al. teach that this arrangement is beneficial for reducing engine emissions during engine cold starts. (Hu et al.; column 1, lines 5-11; column 6, lines 51-57; column 9, lines 37-51; and column 10, lines 55-58).

It would have been obvious to one of ordinary skill in the art at the time that the applicants' invention was made to have modified the substrate taught above by the teachings of Hu et al. One would have been motivated to do so in order to provide a substrate that would reduce emissions during engine cold starts, as taught by Hu et al.

8. Claims 1, 2, 6, 9, 10, 14, 17-20, 24, 27, 28, 32, 35, 36, 38, 40, 42-46, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahata et al. (US 5,376,610) in view of Domesle et al. (US 4,588,707).

Takahata et al. teach a porous substrate for exhaust gas purification that may include multiple layers of catalyst coatings at the inlet and outlet of the substrate. The first catalyst layer may include transition metal oxides such as alumina along with noble metals such as Rh, Pt, or Pd. A second catalyst layer may then be coated over the first; the second layer includes transition metal oxides such as alumina, may include zeolites, and may include noble metals such as Pt or Pd. The upstream and downstream portions of the substrate may have different compositions of catalyst layers. These coatings are "fixed", and thus exhibit a minimum of component migration from the

zones. (column 4, lines 36-62; column 5, lines 17-26, 40-42, and 50-54; column 7, lines 33-38; column 8, lines 36-44; column 9, lines 16-17 and 33-44; column 11, lines 6-17; column 12, lines 48-68; column 13, lines 23-59; column 15, lines 46-57; and column 16, lines 8-28).

Takahata et al. do not teach the use of a wall flow substrate or that a coating may lack a noble metal.

However, Domesle et al. teach a wall flow ceramic honeycomb substrate with an inlet end and an outlet end that has wall elements that form a plurality of channels. Catalyst compositions of rare earth oxides are coated to the inlet end and outlet, with a noble metal being preferably coated at the outlet end. Domesle et al. teach that a wall flow substrate is useful because it causes gases to flow through pores and the wall, causing impurities to be filtered from exhaust gases. Domesle et al. teach that this is particularly useful for filtering Diesel soot from exhaust gas. (Domesle et al.; column 1, lines 63-68; column 2, lines 1-18 and 37-44; and column 3, lines 19-50).

It would have been obvious to one of ordinary skill in the art at the time that the applicants' invention was made to have modified the substrate of Takahata et al. by the teachings of Domesle et al. One would have been motivated to do so in order to provide a substrate that was useful for filtering impurities from exhaust gases, particularly Diesel soot, as taught by Domesle et al.

9. Claims 37, 39, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahata et al. (US 5,376,610) in view of Domesle et al. (US

4,588,707) as applied to claims 1, 2, 6, 9, 10, 14, 17-20, 24, 27, 28, 32, 35, 36, 38, 40, 42-46, and 51 above, and further in view of WO 92/09848.

The former references teach the substrate taught in paragraph 8. However, these references do not teach that coatings from different catalyst zones may overlap or that there may be at least three catalyst zones.

However, WO 92/09848 teaches a catalytic substrate for processing exhaust gas. The substrate may have three zones of catalyst coatings and the coatings may overlap between zones. WO 92/09848 teaches that this arrangement may be used to provide higher catalyst activity at the front edge of the substrate, providing a lower light off temperature and no "hot-spotting" in the latter portion of the catalyst (WO 92/09848; Figures 1a-1d and 2a-2d; and page 14-15).

It would have been obvious to one of ordinary skill in the art at the time that the applicants' invention was made to have modified the substrate described above by the teachings of WO 92/09848. One would have been motivated to do so in order to provide a substrate with a lower light-off temperature and no "hot-spotting" in a latter portion of the substrate, as taught by WO 92/09848.

10. Claims 47-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahata et al. (US 5,376,610) in view of Domesle et al. (US 4,588,707) as applied to claims 1, 2, 6, 9, 10, 14, 17-20, 24, 27, 28, 32, 35, 36, 38, 40, 42-46, and 51 above, and further in view of Hu et al. (US 6,044,644).

The former references teach the substrate described in paragraph 8. However, these references do not teach the use of oxygen storage components.

However, Hu et al. teach catalyst supports for processing engine exhaust in which an upstream catalyst support lacks oxygen storage components, such as ceria and praseodymium oxide, while a downstream support includes these oxygen storage components. Hu et al. teach that this arrangement is beneficial for reducing engine emissions during engine cold starts. (Hu et al.; column 1, lines 5-11; column 6, lines 51-57; column 9, lines 37-51; and column 10, lines 55-58).

It would have been obvious to one of ordinary skill in the art at the time that the applicants' invention was made to have modified the substrate taught above by the teachings of Hu et al. One would have been motivated to do so in order to provide a substrate that would reduce emissions during engine cold starts, as taught by Hu et al.

Response to Arguments

11. The examiner acknowledges the applicants' amendment received by the USPTO on August 17, 2006. The amendments to the claims overcome prior objections to the claims, as well as prior rejections under 35 USC 112, 2nd paragraph. However, a new claim objection to claim 18 and new 35 USC 112, 2nd paragraph rejections have been raised by the applicants' amendments to claims 1, 10, and 18 (see paragraphs 1-3). Claims 1, 2, 6, 9, 10, 14, 17-20, 24, 27, 28, 32, and 35-51 remain under consideration in the application.

12. Applicants' arguments filed August 17, 2006 have been fully considered but they are not persuasive.

With regard to the applicants' arguments on pages 13-16 of the remarks, it is noted that the applicants have amended independent claims 1 and 10 to include the common limitation "exhibiting a minimum of component migration from the first zone". However, the examiner respectfully disagrees with the applicants' major argument that this limitation patentably distinguishes from the prior art references under 35 USC 103(a), in addition to the new 35 USC 112, 2nd paragraph rejections based on the indefiniteness of this limitation. As the applicants state on pages 13 and 15, the WO 92/09848 and Takahata et al. references, respectively, disclose "fixed" coating compositions. As a result, the new limitation of claims 1 and 10 would be met by these references, as a "fixed" coating would necessarily exhibit a "minimum of component migration". Since it is not specifically disclosed in the applicants' specification and both of the prior art references (as set forth in the above 35 USC 112, 2nd paragraph rejections), how would a "fixed" coating composition be able to migrate, absent additional structure(s) within the honeycomb? To what extent of movement is "minimum migration"? Furthermore, the applicants have not set forth any distinct structural features (as a portion of the larger honeycomb substrate) that would affix the coating composition to such an extent as to "exhibit a minimum of component migration". The applicants are suggested to submit a showing of unexpected results in the form of a declaration or affidavit, in addition to more distinctly defining the further structural features within the honeycomb substrate in independent claims 1 and 10.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571) 272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin P. Kerns Kevin Kerns 8/21/06
Primary Examiner
Art Unit 1725

KPK
kpk
August 21, 2006